

After attending the AAAS Meeting in New York at the end of December 1967, I was delighted to accept an invitation from the Honeywell Company to visit them. It meant travelling at their expense, mostly by air, from New York to Washington, then Minneapolis—their Headquarters, to Denver, Boulder, Seattle, San Diego, La Jolla (Mount Palomar), Los Angeles and back to Washington and London. I saw much of interest, made extensive notes, wrote many articles for the *Daily Telegraph*, but unfortunately only a few were published.

Most impressive of all was Honeywell's laser-gyroscope, a totally novel invention, and this report was acknowledged by the Night Editor as worthy of publication. (Perhaps he was an amateur yachtsman and hoped one day to own one!) It is a triangular quartz block with its three sides of 14 cm length having three tunnels inside, parallel to the triangle's sides. Through these miniature tunnels travel two laser beams, being reflected back from mirrors at the edges. Any minute time difference in the arrival of the two light beams is due to a deflection of the whole quartz block, and hence due to the movement of the ship, the rocket or the aircraft, in which the laser-gyro is mounted.

It has marked advantages over the normal gyroscope, being cheap as it can be mass-produced, it can deliver its digital output in figures which can be electronically used and it can start up immediately, without having to wait for the run-up of the conventional rotating gyroscopes. Called Inertial Guidance, and originally developed for the navigation of atomic submarines, it was in 1968 still too expensive for commercial aircraft, but was confidently predicted by Honeywell scientists that they would benefit greatly from their laser-gyro. Dr J.E. Kilpatrick, the leader of the design and construction team in Minneapolis, told me at the time "Reliability is the prime consideration for the whole electronic system."

At the Denver research laboratory, I was shown a novel recording system for heart beats. Whereas normally heart beats show as single lines, Honeywell's 'Visi-corder' shows a vectogram, a loop of the heart beat from two sides, which will prove a great advantage.

In Seattle, Honeywell's research was focussed on underwater electronics, covering radar, sonar, echo sounders and other nautical electronic instruments. Their latest development was an 'echo-scanar', an electronic echo-sounding instrument which scans ahead and to both sides of a vessel for obstructions. Typical uses would be for locating shoals of fish, for salvage, for rescue vessels and fire-fighting boats. A new electronic underwater acoustic beam for oil-drilling ships, used on the Norwegian coast, was also shown to me.